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Running head: RCT GROUP INTERVENTION ON WORK-ANXIETIES

Work-anxiety and sickness absence after a short inpatient cognitive behavioral group intervention in comparison to a recreational group meeting

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Abstract

Objective

To study the effects of a short term cognitive behavior therapy on work-anxiety and sickness-absence in patients with work-anxiety.

Methods

Three-hundred-forty-five inpatients who suffered from cardiologic, neurological or orthopaedic problems and additionally work-anxiety were randomly assigned into two different group-interventions. Patients got four sessions of a group intervention, which either focussed on cognitive behaviour-therapy anxiety-management (work-anxiety-coping-group, WAG), or unspecific recreational activities (RG).

Results

No differences were found between WAG and RG for work-anxiety and subjective work ability. When looking at patients who were suffering only from work-anxiety, and no additional mental disorder, the duration of sickness absence until six-months-follow-up was shorter in the WAG (WAG: 11 weeks, RG: 16 weeks, $p=.050$).

Conclusion

A short term work-anxiety-coping-group may help return to work in patients with work-anxieties, as long as there is no comorbid mental disorder.

Keywords: Workplace, mental health, anxiety, sick leave, work-oriented rehabilitation

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Introduction

An important cause for long term sickness absence and early retirement are work-related anxieties [1-6]. They may occur as an additional complication of other mental disorders [6], or as a separate problem without such comorbidity [6]. Work-anxiety can, similar to other anxiety disorders be seen in different forms, like situational anxiety, social anxiety, worrying, anxiety of insufficiency, hypochondriac anxiety, adjustment anxiety, workplace phobia [2,5,6]. However, the common characteristic of work-anxieties is that it is directed towards the stimulus workplace or work in general. Therefore, avoidance behavior, which regularly accompanies anxiety, affects the workplace or work in general. Avoidance behavior towards work usually presents as sick leave. Work-anxiety, furthermore, is in need of specific interventions. In the prevention of long term sickness absence work-anxiety should be addressed as early as possible. The aim must be to keep sick leave duration as short as possible, as avoidance of the workplace can itself increase the problem [1].

There is a number of interventions for patients with mental disorders to help return to work, focusing on work-directed self-efficacy, work problem solving and early reintegration [e.g. 7-14]. Their outcome is inconclusive and sometimes even counterproductive when even treatment *without* specific additional work-directed interventions was associated with an earlier return-to-work [9,10]. The goal of the present study was to evaluate a short term cognitive behavioral group intervention with the focus on work-anxieties in patients from a cardiologic, orthopedic, and neurological rehabilitation unit. Patients with such somatic illnesses are in risk to develop work-anxieties and long term sickness absence. The question is whether a short term early intervention targeting on work-anxieties can prevent a negative

course.

Method

Setting and procedure

A cluster-randomized controlled trial was conducted in a rehabilitation hospital, where patients are treated for three weeks because of orthopaedic, cardiologic, or neurological disorders. After admission to the hospital patients between 18 and 64 years of age filled in a short rating on work-anxiety. It contains items extracted from the Job-Anxiety-Scale, JAS [15] which covered the leading symptoms of the different work-anxiety diagnosis [6]. If the patients had an elevated score of > 2 (rating 0-4) in two or more of the seven work-anxiety items, structured diagnostic interviews on work-anxieties (the above mentioned seven types of work-anxiety, Work-Anxiety-Interview WAI, compare section instruments) and mental disorders (Mini International Neuropsychiatric Interview, MINI) was done [6,16]. If patients fulfilled the criteria of at least one relevant work-anxiety diagnosis, they were invited to participate in the intervention study. Patients had to give their written informed consent. They were then treated either in a work-anxiety-coping-group or a recreational group which were offered in exchange every three months over a study period of 29 months in total. An active control group was chosen to control for unspecific treatment effects.

Self-ratings on illness-related impairment (Index for Measuring Participation Disorders, IMET) [17,18], work-anxiety (Workplace-Phobia Screening, WPS) [4], general mental wellbeing respective general mental symptom load (WHO-5) [19], and work-related coping (Inventory for Job Coping and Return Intention, JoCoRi)¹ [20] were done at the beginning and the end of the intervention and in the follow-up. The Work Ability Index [21]

¹ The JoCoRi was developed in the beginning of the therapy study and therefore could be given only to a part of the patients, i.e. those who participated later.

and a global rating on how work had subjectively affected the patient's health status [4] were answered at the beginning and the end of the intervention. Additionally, data from the medical reports were used: medical problems (problems with physical work ability: yes or no, problems with mental work ability: yes or no), prognosis of work ability (less than 3 hours per day, 3-6 hours per day, more than 6 hours per day), and suggestions for work adjustment (work adjustment due to medical reason is necessary: yes or no), or work reintegration (stepped reintegration at the workplace is medically suggested: yes or no).

Six months after the inpatient stay, a follow up questionnaire was send out, asking for the health and sick leave status and the sick leave duration after rehabilitation.

This study was approved by the Ethics Committee of the University of Potsdam, Germany, and the internal review board including the department of data protection of the German Federal Pension Fund.

Participants

One thousand six hundred and ten patients were seen in the screening interview. 51.4% (n = 828) showed increased ratings in the screening questionnaire and 429 participated in an additional diagnostic interview. Those 399 who did not follow the additional diagnostic due to different reasons: 257 had good work-coping and said they did not need the group, 36 said the group was “too much” in their therapy schedule, 13 had a negative work ability prognosis, 17 were prone for old-age pension, 17 said that they did not want to work again, 13 were too severely medically impaired for group participation, and the others did not want to participate due to different reasons (psychotherapy at home, medical problems must be regarded in treatment).

Three hundred ninety three of those interviewed in detail fulfilled diagnostic criteria of at least one work-anxiety-type, 345 participated in the therapy study. The patients who fulfilled

inclusion criteria but did not participate were significantly longer on sick leave in the past 12 months than those who participated ($M = 15.12$ weeks [$SD = 21.40$] versus $M = 9.12$ week [$SD = 16.15$], $p = .028$), had lower subjective physical work ability ($M = 1.80$ [$SD = 1.00$] versus $M = 2.10$ [$SD = 1.04$], $p = .044$), and had more diagnoses in the MINI interview ($M = 1.51$ [$SD = 1.19$] versus $M = 1.06$ [$SD = 1.19$], $p = .015$).

Thirty six patients from the 345 who started treatment dropped out due to avoidance and unpleasant feelings after the first group session (therapy refusers). Others were taken out of the group because of medical reasons ($n = 4$) or procedural requirements of the hospital ($n = 2$). 254 patients who had finished the treatment answered the follow-up questionnaire six months later, while 49 other treatment finishers did not answer the follow-up questionnaire. Drop outs (i.e. patients stopping therapy due to unpleasant feelings, $n = 36$) compared to patients who followed the intervention showed no significant differences in work-related and sociodemographic baseline characteristics, except that the drop outs had higher initial workplace phobic anxiety than the patients who followed the intervention ($M = 1.63$ ($SD = 1.17$) versus $M = 1.25$ ($SD = 0.92$), $p = .049$).

In sum, 345 patients fulfilled the inclusion criteria, had work-anxieties, and participated in the intervention study. Table 1 shows the sample characteristics.

[insert table 1 about here]

Instruments

The assessment of mental disorders was done with the *Mini International Neuropsychiatric Interview*, MINI [16], an internationally used instrument which covers the full range of mental disorders according to DSM-IV [22]. Added was the *Work-Anxiety-Interview*

[4,6,15,23] which covers work-related situational anxiety, work-related hypochondriac anxiety, social anxieties, anxiety of insufficiency, general worrying, adjustment disorder, and workplace phobia. Based on 83 diagnostic interviews which were done with a co-rater, the inter-rater reliability in this study was .78.

Capacity and participation restrictions were assessed with the *Mini-ICF-APP* [24,25] an internationally evaluated observer rating instrument in reference to the WHO International Classification of Functioning, Disability and Health, ICF [26], which covers (1) adherence to regulations, (2) planning and structuring of tasks, (3) flexibility, (4) professional competency, (5) judgements, (6) endurance, (7) assertiveness, (8) contact with others, (9) group integration (10) intimate relationships, (11) spontaneous activities, (12) self-care, (13) mobility. Each dimension is rated on a five-point Likert-scale (0 = *no impairment* to 4 = *full disability*).

The subjective global, physical and mental work ability was assessed with the *Work Ability Index* [21].

The *Index for the Measurement of Restrictions in Participation*, IMET [17,18] is a self-rating instrument on illness-related restrictions in participation. It covers: 1. activities of daily living (washing, eating etc.), 2. activities at home (housework, gardening etc.), 3. outside the home activities (shopping, driving around etc.), 4. Duties (cleaning up, care of others etc.), 5. recreational activities (sports, leisure time etc.), 6. Social activities (meeting friends, theatre etc.), 7. close relations (partner, family etc.), 8. Sexual life (quantity and quality), 9. coping with stress, 10. work and professional activities. The patient is asked to make a rating for each item on a visual analogue scale, ranging from 0 = *no impairment* to 10 = *no activity possible any more*.

The *WHO-5* wellbeing-rating [19] was used to assess general mental wellbeing (respective symptom load), i.e. whether the patient feels well, relaxed, active, and full of

interest for life. The rating is done on a six step scale from 5 = *I feel like this all the time* to 0 = *I never feel like this*.

The *Workplace Phobia Scale*, WPS [4,15,23], is a self-rating scale with 13 items. The WPS is given to the patients under the title ‘questionnaire on workplace problems’ which examines ‘behaviour, thoughts, and feelings which can occur in relation to the workplace’. The answers are given on a Likert-scale ranging from 0 = *no anxiety* to 4 = *severe anxiety*.

A part of the patients filled in at the beginning and end of rehabilitation the 30 items inventory of *Job-Coping-and-Return-Intention*, JoCoRi [20] a self-rating questionnaire on work-related coping, which aims at measuring the changes in work-coping perception on the dimensions (1) return to work-intention, (2) work-directed self-efficacy, (3) work-related self-calming and self-instruction, (4) work-related control perception, (5) work-related active coping and problem solving, (6) subjectively perceived relevance of (return to) work, (7) and control cognition concerning return to work.

Patients were also asked in the beginning and in the end of rehabilitation to make a global rating on the relation between work and health problems by answering a visual analogue scale from 0 = *work has not caused my health problems* to 100 = *my health problems are completely due to work*.

Group therapies

Cognitive behaviour therapy [23,27-30] is internationally seen as treatment of choice for anxiety. The goal of the work-anxiety-coping-group (WAG) was to develop and train individual cognitive and behavioural strategies to cope with work-anxiety, including worries and dealing with social and health-related conflicts and problems at the workplace. The focus is on how to return to work as soon as possible after medical rehabilitation.

As control group served a recreational group setting (RG) focussing on unspecific recreational activities and general wellbeing [31]. Patients were stimulated to engage in creative activities like painting, cooking, or playing games, and to forget work and professional problems.

Both groups were conducted by the same physician, a specialist in psychiatry with ten years of professional experience. Content and methods for both treatments were described in a manual [15]. Patients were treated according to their individual problems. Situation and behaviour analysis, problems solving and guided discovery questions in order to achieve cognitive restructuring were the preferred methods, as well as homework assignments between the group sessions.

Both groups were weekly supervised by a state-licensed psychological behavior therapist with special expertise in work-anxieties who had also carried out the initial screening and diagnostic interview with the patients. Supervision was done live in or after (at least every fourth) group sessions. Supervision included case-related monitoring, controlling for side effects, and monitoring therapist's manual adherence [15]. The group was conducted twice a week, each session about 90 minutes. There were on average six to eight patients in the group, and patients got on average four sessions of group therapy during their three-week rehabilitation stay.

Immediately after each group session participants, therapist and a (clinical assistant) co-therapist filled in a short *Therapy Content Checklist* [15], which had been specially designed to cover content and methods of the present two groups in order to assess protocol adherence. The items of the checklist are given in Table 2. Rating of each item was from 0 = *has not been done at all in this session* to 4 = *has perfectly been done*. A mean score is calculated as an overall score for protocol adherence.

[insert Table 2 about here]

Statistical analyses

Randomization was tested by calculating t-tests or χ^2 -Test for comparison of work-anxiety-coping-group (WAG) and recreational group (RG). Outcomes over the course were examined in analyses of (co)variance with repeated measurements and interaction effects in the sense of group comparison over the course. Analyses were conducted according to protocol, i.e. including only those participants from whom data were available for all of the different assessments.

As work-anxieties can occur either as alone-standing disorders, or as comorbid problem in connection to other mental disorders, comparisons between groups were calculated for all patients (a), for those patients with work-anxiety only (wa) and for work-anxieties with comorbid mental disorders (wac).

Results

There were no significant differences between the WAG and the RG group in the beginning of the rehabilitation treatment (all $p > .05$), except the fact that the patients of the RG group were older than those of the WAG group (see Table 3). Characteristics which are important for return to work (work-related impairment and capacity disorders, past sick leave duration, number of work-anxiety diagnosis, degree of dysfunctional attribution of health problems to the work) were comparable in the two groups.

[insert Table 3 about here]

Results of the *Therapy Content Checklist* show that participants as well as therapist and co-therapist indicated that in the WAG work-directed interventions prevailed ($M = 1.60\text{--}1.99$ [$SD = 0.7$]) while there were almost no recreational activities ($M = 0.02\text{--}0.37$ [$SD = 0.07\text{--}0.4$], $p < .001$ between groups for patient, therapist and co-therapist ratings). In the RG wellbeing and leisure time-oriented therapeutic interventions prevailed ($M = 1.21\text{--}1.75$ [$SD = 0.6\text{--}0.9$]) with almost no work-directed interventions ($M = 0.25\text{--}0.62$ [$SD = 0.5\text{--}0.7$], $p < .001$ between groups for patient, therapist and co-therapist ratings).

Table 4 and 5 show the results of comparison of WAG and RT patients at baseline, at the end of treatment, and six months later. There were 99 patients with only work-anxieties and 246 with work-anxieties and comorbid mental disorders.

[insert Table 4 and 5 about here]

For all patients, there were no significant changes in work-anxiety (WPS), work-related impairment (IMET), and global and mental work ability (WAI) over the course. Only physical work ability showed significant improve over the course. Although not significant in degree of change, it is interesting to notice that work-anxiety in contrast to general mental wellbeing and impairment perception show a different course: Work-anxiety stayed relatively unchanged over the course of treatment until follow-up. General mental wellbeing/symptom load showed an increase at the end of rehabilitation with a small backfall at follow-up.

Some dimensions of work coping perception showed partly a differential development: comorbid patients from the WAG increased in self-calming and self-instruction while the RG reported a loss (marginally significant interaction effect, JoCoRi, Table 5). However, the possibility of cumulative alpha errors over multiple tests of the JoCoRi

dimensions must be considered for all these analysis, and therefore results must be interpreted with caution. Patients with alone-standing work-anxiety from the WAG reported an increase in subjective relevance of work, while the RG declined.

Table 6 shows the socio-medical status at the end of treatment, and the sickness absence six months after treatment. There were no differences at the end of the inpatient stay or follow up for all patients or for patients with work-anxiety and comorbid mental disorders. A significant difference was observed for patients with work-anxiety only. For these patients, sick leave duration six months after rehabilitation was significantly shorter in the WAG (10.51 weeks) than in the RG (15.59 weeks). Similarly, from the WAG more patients were fit for work than in the RG (77.5% vs. 56.6%).

[insert table 6 about here]

Discussion

There was no significant consistent improvement in subjective work-ability, general mental wellbeing/symptom load, work-anxiety, or impairment perception over the course of this short intervention.

Work-anxiety showed another course than general wellbeing/symptom load. The course of wellbeing (WHO-5) during and after inpatient rehabilitation is typical and known from other studies, and is a result of the relieving function of the therapeutic milieu [32]: Usually during rehabilitation patients feel relieved and therefore give more positive ratings on general mental wellbeing at discharge. However, when they return into their all-day setting and are confronted again with the duties and problems, the relieving effect cannot be kept on

a high level. This is similar to the course of recovery effects during and after vacation [35]. In patients from the WAG the course of work-anxiety in comparison to general mental wellbeing is stable. This shows that work-anxiety is a specific quality of psychopathology and does not show an effect of relieve in a therapeutic milieu when patients are confronted with the topic of return to work (due to the rehabilitation setting this is the case even for patients from the RG). This finding shows similarities to an earlier investigation of work-anxiety over the course in a work-oriented rehabilitation treatment [32]. These different courses show that patients distinguish between general mental wellbeing and specific stimulus-related work-anxiety. Therefore work-anxiety needs to be regarded specifically in therapy and research. However, results also point out that work-anxiety may simply require longer durations of treatment, like in other anxiety disorders [33,34].

Still, our data leave some hope concerning the work-anxiety-coping group as a means to facilitate return into working life: In patients with alone-standing work-anxiety, a shorter sick leave duration after rehabilitation was observed in the WAG as compared to the RG. An explanation is that return to work or ability to work is not necessarily depending on subjective well-being, but depending on multiple factors [9,10]. Talking with patients about their return to work, giving reassurance, and thinking about how to solve problems at work may help patients to return to work, while this may at the same time increase awareness of problems and therefore foster uneasiness. Talking about problems at work therefore can help return to work but at the same time not decrease anxiety, so that in the end respective subjective measures show no change in positive direction. This hypothesis is to some part supported by the course of the RG. There is an increase in overall negative attitude to work (global attribution of health problems on work, Table 5, last line). This shows that even negative effects of a non-work-focusing group intervention must be taken into consideration. The RG, which explicitly does not confront participants with work issues, may thereby

contribute to avoidance and externalising attribution of work-health-problems and therefore be contraindicated for patients with work-anxieties. In contrast, the WAG led to a therapeutically desirable decline of attribution of health problems to work.

Strengths and limitations

The strengths of this study are the randomized controlled design and the multi-source approach including patients' and clinical expert observer ratings. The diagnosis and therapies have been done in a standardized and manualized well supervised manner. The intervention was done in a routine care setting, and the results can therefore be generalized to similar institutions. Limitations are that the treatment had to be integrated in the provisions of the hospital, which allowed only a very short intervention. A longer duration of treatment might have resulted in other developments. Due to methodological reasons (avoiding confounding influences of other psychotherapies) a somatic rehabilitation setting has been chosen. However, somatic illness may affect work-anxiety and treatment outcome, therefore results may be not generalized to patients without comorbid somatic illness.

Clinical and occupational medicine and research implications

An add-on work-coping-group within a short rehabilitation is useful to avoid a dysfunctional course of illness development. However, as sick leave shortening was not reached for comorbid patients, work-anxieties and impairment due to mental disorders should also be taken seriously as a mental health problem *at work*. Affected employees may need help and social support in order to become fit for work again after absence. Randomized controlled intervention studies at work [36] should be conducted. They should target the specific risk group of employees with mental disorders and especially work-anxieties, and focus on work ability outcomes.

Conclusion

Patients who were confronted with work and work coping showed a slight increase in self-calming and self-instruction at work, or partly had a shorter sick leave duration, while focusing on recreational wellbeing led to an increase in dysfunctional attribution of health problems towards work. Thus, confrontation with work coping (instead of supporting recreational activities only) may be the rather appropriate strategy when targeting work reintegration.

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TABLE 1. Patient's characteristics

Women	51.6%
Clinical indication	
Neurology	57.9%
Cardiology	26.5%
Orthopaedy	15.6%
Professional qualification	
Unskilled workers	5.5%
Blue collar workers	26.5%
White collar employees	42.1%
Employees with leading position	15.0%
High qualified academics	2.6%
Self-employed academics	2.0%
Self-employed entrepreneurs	5.8%
Present professional situation	
Working full time	59.4%
Working part time	16.5%
In professional education or studies	0.9%
Seasonal or short term jobs	1.2%
Vocational reintegration training	1.7%
Unemployed	17.7%
Time limited disability pension	1.2%
Type of work	
Physical work	38.3%
Mainly office work	39.2%
Working together with colleagues regularly	52.4%
Regular contacts with clients or other thirds	69.7%
Health impairment	
Medically certified chronic health impairment	28.0%
Applied for disability pension or already on disability pension	16.7%

TABLE 2. Items of the content of therapy questionnaire filled in by therapist, co-therapist and all participants after each group session

Work-coping-group interventions	Recreational group interventions
In this group therapy session we have worked on...	
... not to worry too much about work	...creative handicrafts, games or relaxation
...how to get along with health-related disabilities at work	...how to relax actively in free-time
...how to cope with unpleasant thoughts and feelings at work	...exchange of our creative interests
...a specific work situation, the specific problem and what one can do to help solving this problem	...the importance of leisure time activities
...normal allday problems and conflicts at work	...how to initiate or continue hobbies at home

TABLE 3. Randomization towards the different group therapy conditions (work-anxiety-coping-group WAG or recreational group RG)

	Work- Anxiety- Coping- Group WAG (n = 177)	Recreational Group RG (n = 168)	Sig. of difference between the two groups: t-Test respective χ^2 -Test <i>p</i>
Sex: Women	54%	49%	.318
Age	48.94 (8.7)	51.39 (8.0)	.007
Presently obtaining a workplace	81.4%	79.1%	.609
Workplace phobia screening in the beginning of rehabilitation	1.16 (0.9)	1.35 (0.9)	.061
IMET illness-related impairment in the beginning of rehabilitation	3.88 (2.1)	4.28 (2.2)	.094
IMET illness-related impairment of work ability in the beginning of rehabilitation	6.03 (2.9)	6.42 (2.9)	.236
WHO-5 general mental wellbeing in the beginning of rehabilitation	1.86 (1.1)	1.84 (1.2)	.862
Global work ability perception WAI in the beginning of rehabilitation	3.03 (2.6)	2.73 (2.5)	.273
Physical work ability perception WAI in the beginning of rehabilitation	2.17 (1.0)	1.97 (1.0)	.073
Mental work ability perception WAI in the beginning of rehabilitation	2.46 (1.0)	2.26 (1.1)	.060
Duration of sick leave in weeks within 12 months before rehabilitation	8.83 (15.9)	10.71 (16.8)	.287
Mini-ICF-APP capacity disorders in observer-rating	1.01 (0.6)	1.08 (0.6)	.258
Number of work-anxiety diagnosis according to Work-Anxiety-Interview	1.78 (1.9)	1.86 (1.2)	.491
Number of diagnosis of acute mental disorders MINI	1.08 (1.2)	1.10 (1.2)	.930
Number of diagnosis of lifetime mental disorders MINI	1.11 (1.42)	1.09 (1.62)	.476
To which degree do you think work has caused or deteriorated ill health? (Rating 0-100)	45.88 (31.1)	45.29 (29.4)	.590
Number of group therapy sessions within inpatient rehabilitation	3.64 (2.46)	3.85 (2.31)	.418
Number of drop outs due to unpleasant feelings after the first therapy session	21 (12%)	15 (9.1%)	.288

TABLE 4. Comparison of patients from the work-anxiety-coping-group and the recreational group in the beginning, end and six months after rehabilitation. Means (standard deviations) are reported. Analysis of covariance have been done with control variables / covariates: age, sex, presently obtaining a workplace or not. In the analysis over all patients, the comorbidity (suffering from comorbid general mental disorder or not) status has been included as covariate. Confidence interval adjustment by Bonferroni correction. Significance of difference: Effects of repeated measurements and interaction effects [Effect sizes Cohen's d for changes in the work-anxiety-coping-group / changes in the recreational group]. In the first line analyses over all participants (a), in the second line analysis with patients with alone-standing work-anxiety only (wa), in the third line analysis with patients with comorbid work-anxiety and general mental disorder (wac).

	Beginning of rehabilitation		End of rehabilitation		Six months after rehabilitation		Sig. of Difference <i>p</i>	
	Work-anxiety-coping-group (WAG)	Recreational group (RG)	Work-anxiety-coping-group (WAG)	Recreational group (RG)	Work-anxiety-coping-group (WAG)	Recreational group (RG)	Repeated measurement [effect size Cohen's d WAG / RG]	Interaction: group x repeated measurements respective group differences
Workability and impairment perception								
Patient: Global work ability (WAI, Rating 0–10)	n(a) = 138 3.26 (2.70) n(wa) = 44 4.29 (2.57) n(wac) = 94 2.79 (2.61)	n(a) = 130 2.91 (2.55) n(wa) = 37 3.00 (2.82) n(wac) = 93 2.87 (2.45)	n(a) = 138 3.73 (3.10) n(wa) = 44 4.79 (3.43) n(wac) = 94 3.23 (2.84)	n(a) = 130 3.07 (2.93) n(wa) = 37 3.65 (3.12) n(wac) = 93 2.84 (2.84)			.311 [0.15 / 0.06] .714 [0.17 / 0.22] .282 [0.16 / 0.01]	.635 ^a .642 .263
Patient: Physical work ability (WAI, Rating 0–10)	n(a) = 137 2.26 (1.02) n(wa) = 44 2.48 (0.85)	n(a) = 128 2.03 (1.01) n(wa) = 37 1.97 (1.12)	n(a) = 137 2.67 (1.10) n(wa) = 44 3.02 (1.02)	n(a) = 128 2.44 (1.09) n(wa) = 37 2.70 (1.08)			.035 [0.39 / 0.4] .419 [0.58 / 0.67]	.614 ^{a,c} .269

	n(wac) = 93 2.16 (1.08)	n(wac) = 91 2.07 (0.97)	n(wac) = 93 2.52 (1.11)	n(wac) = 91 2.34 (1.09)			.375 [0.33 / 0.26]	.874
Patient: Mental work ability (WAI, Rating 0–10)	n(a) = 135 2.50 (0.98)	n(a) = 128 2.29 (1.13)	n(a) = 135 2.85 (1.03)	n(a) = 128 2.62 (1.06)			.550 [0.35 / 0.3]	.819 ^b
	n(wa) = 44 2.91 (0.83)	n(wa) = 37 2.56 (1.14)	n(wa) = 44 3.11 (1.02)	n(wa) = 37 3.05 (0.91)			.666 [0.22 / 0.48]	.159
	n(wac) = 91 2.30 (0.98)	n(wac) = 91 2.18 (1.11)	n(wac) = 91 2.74 (1.02)	n(wac) = 91 2.44 (1.07)			.528 [0.44 / 0.24]	.486 ^b
Patient: Prognosis of work ability in two years (WAI)	n(a) = 125 4.17 (2.30)	n(a) = 119 4.00 (2.47)	n(a) = 125 4.72 (2.07)	n(a) = 119 4.30 (2.22)			.275 [0.25 / 0.13]	.481
	n(wa) = 40 4.83 (2.45)	n(wa) = 34 4.35 (2.31)	n(wa) = 40 5.50 (1.79)	n(wa) = 34 5.06 (2.20)			.766 [0.32 / 0.32]	.917
	n(wac) = 85 3.86 (2.17)	n(wac) = 85 3.86 (2.53)	n(wac) = 85 4.35 (2.09)	n(wac) = 85 4.00 (2.17)			.764 [0.23 / 0.06]	.430
Illness-related impairment (IMET, 0 = no impairment, 10 = no activity possible)	n(a) = 93 3.71 (2.09)	n(a) = 94 3.91 (2.06)	n(a) = 93 3.00 (2.14)	n(a) = 94 3.47 (2.05)	n(a) = 93 3.28 (2.64)	n(a) = 94 3.41 (2.62)	.730 [0.18 / 0.21]	.419
	n(wa) = 31 2.96 (1.74)	n(wa) = 25 3.76 (2.09)	n(wa) = 31 2.37 (1.74)	n(wa) = 25 2.89 (1.68)	n(wa) = 31 2.57 (2.38)	n(wa) = 25 2.50 (2.32)	.922 [0.19 / 0.58]	.340
	n(wac) = 62 4.08 (2.18)	n(wac) = 69 3.97 (2.06)	n(wac) = 62 3.31 (2.27)	n(wac) = 69 3.68 (2.15)	n(wac) = 62 3.64 (2.72)	n(wac) = 69 3.74 (2.66)	.995 [0.18 / 0.01]	.223
Illness-related impairment at work (IMET, 0 = completely fit for work, 10 = completely unfit for work)	n(a) = 89 5.96 (2.70)	n(a) = 92 6.08 (2.83)	n(a) = 89 5.19 (3.07)	n(a) = 92 5.65 (2.91)	n(a) = 89 4.75 (3.37)	n(a) = 92 5.42 (3.22)	.190 [0.4 / 0.22]	.740
	n(wa) = 31 4.71 (2.37)	n(wa) = 25 5.84 (3.26)	n(wa) = 31 4.39 (2.77)	n(wa) = 25 5.08 (2.81)	n(wa) = 31 3.81 (3.48)	n(wa) = 25 4.48 (3.25)	.865 [0.31 / 0.43]	.701
	n(wac) = 58 6.62 (2.64)	n(wac) = 67 6-16 (2.67)	n(wac) = 58 5.62 (3.16)	n(wac) = 67 5.87 (2.94)	n(wac) = 58 5.26 (3.24)	n(wac) = 67 5.78 (3.16)	.376 [0.46 / 0.13]	.351
General mental wellbeing WHO-5, 1 = bad, 5 = best)	n(a) = 93 1.93 (1.06)	n(a) = 89 1.87 (1.11)	n(a) = 93 2.72 (1.02)	n(a) = 89 2.56 (1.12)	n(a) = 93 2.42 (1.14)	n(a) = 89 2.15 (1.20)	.265 [0.45 / 0.24]	.400
	n(wa) = 30 2.38 (1.00)	n(wa) = 25 2.20 (0.98)	n(wa) = 30 3.10 (0.84)	n(wa) = 25 3.25 (0.89)	n(wa) = 30 2.78 (1.10)	n(wa) = 25 2.53 (1.17)	.138 [0.39 / 0.31]	.237
	n(wac) = 63	n(wac) = 64	n(wac) = 63	n(wac) = 64	n(wac) = 63	n(wac) = 64	.894	.292

	1.72 (1.03)	1.74 (1.14)	2.54 (1.05)	2.29 (1.10)	2.24 (1.12)	2.01 (1.18)	[0.49 / 0.23]	
Workplace phobic anxiety	n(a) = 96	n(a) = 91	n(a) = 96	n(a) = 91	n(a) = 96	n(a) = 91	.566	.658
(Workplace phobia screening, 0	1.11 (0.79)	1.39 (1.97)	1.09 (0.88)	1.34 (1.10)	1.20 (0.91)	1.43 (1.06)	[0.11 / 0.03]	
= no anxiety, 4 = heaviest	n(wa) = 33	n(wa) = 25	n(wa) = 33	n(wa) = 25	n(wa) = 33	n(wa) = 25	.786	.575
anxiety)	0.94 (0.72)	1.14 (0.91)	0.86 (0.90)	0.90 (0.90)	0.87 (0.76)	1.02 (0.94)	[0.1 / 0.13]	
	n(wac) = 63	n(wac) = 66	n(wac) = 63	n(wac) = 66	n(wac) = 63	n(wac) = 66	.988	.709 ^a
	1.20 (0.83)	1.47 (0.98)	1.22 (0.86)	1.51 (1.13)	1.36 (0.93)	1.58 (1.07)	[0.18 / 0.11]	

Notes: ^a = Significant effect of the interaction repeated measurement with covariate “Presently obtaining a workplace or not” (WAI global work ability: .031, WAI physical work ability .009, WAI mental work ability .099, Workplace phobic anxiety .032). ^b = significant effect of the interaction repeated measurements with covariate sex (WAI mental work ability.005, .028). ^c = significant effect of the interaction repeated measurements with covariate mental comorbidity (comorbid mental disorder or not: .040).

TABLE 5. Work-Coping-Perception: Comparison of patients from the work-anxiety-coping-group (WAG) and the recreational group (RG) in the beginning and end of treatment ($N=140$). Means (standard deviations) are reported. Analysis of covariance have been done with control variables / covariates: age, sex, presently obtaining a workplace or not. In the analysis over all patients, the comorbidity (suffering from comorbid general mental disorder or not) status has been included as covariate. Confidence interval adjustment by Bonferroni correction. Significance of difference: Effects of repeated measurements and interaction effects. Effect sizes Cohen's d for changes in the WAG / changes in the RG. In the first line analyses over all patients (a), in the second line analysis with patients with alone-standing work-anxiety only (wa), in the third line analysis with patients with comorbid work-anxiety and general mental disorder (wac).

	Work- Anxiety- Coping- Group (WAG)	Recreational Group (RG)	Work-Anxiety- Coping- Group (WAG)	Recreational Group (RG)	Repeated measure- ments	Effect sizes of repeated measurement Cohen's d WAG / RG	Interacti on: Group * Repeated measure ments
Job-Coping and Return Intention (JoCoRi)	n(a)=68 n(wa)=23 n(wac)=45	n(a)=72 n(wa)=18 n(wac)=54	n(a)=68 n(wa)=23 n(wac)=45	n(a)=72 n(wa)=18 n(wac)=54			
Return to work intention and - planning	3.69 (1.05) 4.39 (0.51) 3.34 (1.08)	3.48 (1.12) 3.77 (0.86) 3.38 (1.20)	3.61 (1.13) 4.21 (0.79) 3.31 (1.16)	3.37 (1.10) 3.77 (0.83) 3.23 (1.16)	.722 .106 .395	0.07 / 0.1 0.28 / 0.0 0.03 / 0.13	.818 .330 ^c .559
Work-related self-efficacy	3.29 (0.88) 3.57 (0.59) 3.13 (0.97)	3.11 (0.94) 3.39 (0.99) 3.01 (0.91)	3.14 (0.80) 3.38 (0.64) 3.02 (0.85)	2.97 (1.03) 3.30 (1.05) 2.86 (1.00)	.974 .712 .835	0.18 / 0.14 0.32 / 0.09 0.12 / 0.16	.915 .568 .842
Work-related self-calming and self-instruction	3.66 (0.93) 4.04 (0.57) 3.46 (1.01)	3.51 (0.82) 3.53 (0.95) 3.51 (0.78)	3.74 (0.77) 3.93 (0.63) 3.64 (0.82)	3.51 (0.90) 3.73 (0.72) 3.43 (0.95)	.353 .303 .041	0.09 / 0.0 0.19 / 0.24 0.2 / 0.09	.457 ^{a,b} .164 .061 ^{d,e}
Work-related external control perception	2.59 (0.95) 2.45 (0.90) 2.65 (0.98)	2.68 (0.85) 2.38 (0.94) 2.78 (0.81)	2.48 (0.80) 2.54 (0.86) 2.44 (0.78)	2.68 (0.93) 2.33 (0.85) 2.79 (0.92)	.874 .137 .491	0.13 / 0.0 0.1 / 0.06 0.24 / 0.01	.325 .424 .109
Work-related active coping	3.89 (0.85)	3.66 (0.94)	3.99 (0.80)	3.62 (0.97)	.423	0.12 / 0.04	.242

(problem-solving and interaction)	2.17 (0.72)	3.85 (0.97)	4.20 (0.78)	3.83 (0.84)	.863	0.04 / 0.02	.937
	3.74 (0.88)	3.59 (0.94)	3.89 (0.80)	3.55 (1.00)	.397	0.18 / 0.04	.186
Subjective relevance of (return to) work	4.06 (0.80)	3.89 (0.96)	4.14 (0.89)	3.84 (1.07)	.944	0.1 / 0.05	.306
	4.28 (0.61)	4.27 (0.75)	4.46 (0.49)	4.04 (0.89)	.800	0.33 / 0.29	.065
	3.94 (0.87)	3.76 (0.99)	3.96 (0.99)	3.78 (1.13)	.898	0.02 / 0.02	.937
Internal control perception concerning return to work	3.45 (1.29)	3.24 (1.36)	3.46 (1.27)	3.34 (1.35)	.974	0.01 / 0.07	.634
	3.65 (1.12)	3.82 (1.36)	3.78 (1.09)	3.85 (0.99)	.998	0.12 / 0.03	.775
	3.35 (1.37)	3.06 (1.32)	3.29 (1.34)	3.18 (1.41)	.601	0.04 / 0.09	.510
To which degree are your health problems caused or forced by your (last) work (Rating 0-100)?	n(a) = 121	n(a) = 117	n(a) = 121	n(a) = 117			
	47.69 (30.96)	48.04 (28.44)	45.36 (30.07)	53.78 (30.73)	.328	0.08 / 0.19	.066 ^g
	n(wa) = 41	n(wa) = 33	n(wa) = 41	n(wa) = 33			
	41.05 (27.23)	44.73 (26.87)	43.76 (28.89)	49.55 (28.73)	.414	0.1 / 0.18	.949
	n(wac) = 80	n(wac) = 84	n(wac) = 80	n(wac) = 84			
	51.10 (32.33)	49.35 (29.08)	46.18 (30.81)	55.45 (31.49)	.661	0.16 / 0.2	.042 ^f

Note: ^a = Significant effect of the interaction repeated measurements with covariate age .025, ^b = Significant effect of the interaction repeated measurements with covariate presently obtaining a workplace or not .037, ^c = Significant effect of the interaction repeated measurements with covariate gender .045, ^d = Significant effect of the interaction repeated measurements with covariate age .007, ^e = Significant effect of the interaction repeated measurements with covariate presently obtaining a workplace or not .006. ^f = Significant effect of the interaction repeated measurements with covariate gender .019. ^g = Significant effect of the interaction repeated measurements with covariate gender .007. Analysis over all patients (a): The covariate comorbidity status (suffering from mental disorder or not) did not have any significant influence in any of the analysed variables.

TABLE 6. Work ability and sick leave duration after rehabilitation: Comparison of patients of the work-anxiety-coping-group and the recreational group six months after rehabilitation. Means (standard deviations) and percentages are reported. Significance of difference in group comparison (χ^2 -Test respective t-Test for independent samples). In the first line analyses over all participants (a), in the second line analysis with patients with alone-standing work-anxiety only (wa), in the third line analysis with patients with comorbid work-anxiety and general mental disorder (wac) ($N = 345$ socio-medical judgment, $N = 254$ sick leave data).

	Work-Anxiety-Coping-Group (WAG)	Recreational Group (RG)	Sig. of difference between the groups p (t-Test or χ^2 -Test)
Socio-medical judgments and work ability six months after rehabilitation	n(a) = 177 n(wa) = 54 n(wac) = 123	n(a) = 168 n(wa) = 45 n(wac) = 123	
Fit for work six months after rehabilitation (% of cases)	64.9% 77.5% 58.1%	57.5% 56.6% 57.8%	.253 .063 .972
Duration of sick leave six months after rehabilitation in weeks	13.17 (10.08) 10.51 (9.14) 14.61 (10.32)	15.16 (11.15) 15.59 (11.18) ^a 15.01 (10.98)	.165 .050 .817
Medical prognosis of daily work ability (Medical report: 0 = under 3h, 3 = 3-6h, 6 = 6h+)	4.40 (2.53) 5.38 (1.59) 5.28 (1.74)	4.01 (2.76) 5.05 (2.12) 4.97 (2.12)	.216 .382 .219
Problems with mental work ability (Medical report, % of cases)	34.5% 28.3% 37.2%	35.8% 26.7% 39.2%	.806 .857 .752
Problems with physical work ability (Medical report, % of cases)	53.4% 45.3% 57%	53.9% 42.2% 58.3%	.928 .761 .837
Suggestion for work adjustment (Medical report, % of cases)	10.2% 5.5% 12.2%	7.1% 11.1% 5.7%	.319 .313 .752
Stepped reintegration at the present workplace (Medical report, % of cases)	14.1% 18.5% 12.2%	14.3% 13.3% 14.6%	.966 .485 .575

Note: ^aIn patients with alone-standing work-anxiety there were no differences between WAG and RG concerning the sick leave duration in the past 12 months before rehabilitation, age, professional degree, professional situation (obtaining workplace or not). Patients from the WAG had lower initial degrees of work-anxiety and illness-related impairment (IMET) than the RG, but there were no differences between the two groups concerning degree of attribution of health problems to the workplace, general mental wellbeing.